REMARKS

Claims 1-19, 27 and 28 are pending in this application, with claims 11-19 currently withdrawn from consideration. Claims 1-3, 7 and 14 have been amended herein and new claim 28 has been added.

Restriction is required under 35 U.S.C. 121 and 372.

Applicants respectfully elect Group I (claims 1-10 and 27) drawn to an amorphous non-scale carbon tube. This election is made with traverse of the restriction requirement.

In traversing the restriction requirement, Applicants note that the Examiner states that the claims "lack the same or corresponding technical feature". The Examiner explains that the feature linking the claims is an amorphous carbon nanotube, but that this "is not applicant's contribution over the prior art, and thus does not serve as a special technical feature."

However, Applicants note that claim 1 does not simply claim "amorphous carbon nanotubes", but claims nano-scale carbon tubes having particular characteristics. Applicants argue below that the carbon nanotubes of claim 1 are not taught in the prior art and therefore can be a special technical feature.

Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite.

Reconsideration of the rejection is respectfully requested in view of the amendment to claim 2.

Claim 2 has been amended to amend "a dimension in a planar direction" to --a dimension in the planar direction--. The "dimension" in claim 2 refers to the size of such tiny hexagonal carbon layers in the planar direction. Such tiny hexagonal carbon layer is composed of hexagons or condensed carbon six-membered rings.

Applicants have also amended the claims 1-3, 7 and 14 to recite "Amorphous nano-scale carbon tubes". The nano-scale carbon tube of the present invention has an amorphous structure or nature.

Carbon nanotubes whose wall structure consists of a single graphite sheet closed in a tubular shape are called single-layer carbon nanotubes, while those consisting of a plurality of graphite sheets each closed into a tubular shape and nested one within the other (and therefore the cross-section is concentric) are called multilayer carbon nanotubes. Such conventional carbon nanotubes have a graphitic structure in which the wall is made of graphitic layer or layers. Each of the layers is one single continuous graphite layer.

A TEM image of a cross section of a multilayer carbon nanotube is circular, and the linear graphene sheet images that are continuous over the entire length in the lengthwise direction are arranged in parallel (a concentric cylindrical or nested structure).

On the other hand, in the amorphous nano-scale carbon tube of the present invention, the wall thereof is amorphous, namely made of numerous tiny hexagonal carbon layers randomly arranged or distributed, so that continuous linear graphene sheet images are not observed by TEM, as shown in Fig. 3B.

Claims 1-8 and 27 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Kyotani et al. ("Preparation of Ultrafine Carbon Tubes ...").

Reconsideration of the rejection is requested in view of the amendments to the claims.

The Examiner cites Kyotani et al. as disclosing carbon nanotubes with a d002 interlayer spacing value of 3.54Å and a diameter of 230 nm.

As amended, claim 1 requires the nano-scale carbon tubes to have a d002 interlayer spacing value of **at least 3.7Å** and a 2θ band half-width of **at least 3.2 degrees**. Applicants submit that claim 1, as amended, is not anticipated by Kyotani et al. Applicants also submit that the limitations of present claim 1 are not suggested by Kyotani et al.

Kyotani et al. simply discloses on page 2113, right column, lines 21-28 that by changing the length and the inner diameter of the channels in an anodic oxide film, the length and the diameter of the carbon tubes can be controlled, and that by changing the carbon deposition period, the wall thickness can be controlled.

Thus, Kyotani et al. fails to teach how the d002 interlayer spacing value can be controlled, and not to mention how the d002 interlayer spacing value of as high as at least 3.7 Å of new claim 1 can be achieved.

In addition, Applicants submit that the amorphous nano-scale carbon tubes of the present invention, as recited in amended claim 1, are useful for gas storing. Applicants refer to Table 4 on page 38 of the specification, which demonstrates excellent hydrogen storing ability of the amorphous nano-scale carbon tubes of the present invention, as compared with conventional carbon nanotubes

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made by arc discharge in Comparative Example 1, which have a d022 interlayer spacing value of **3.4** Å and a 2θ band half-width of 0.9 degrees.

Applicants submit that the properties of the present invention, such as the above-mentioned excellent gas storing ability, would not be predicted from Kyotani et al. Therefore, the gas storing properties of the present invention represent an unexpected result over Kyotani et al.

Applicants therefore submit that claims 1-8 and 27, as amended, are novel and non-obvious over Kyotani et al.

Claims 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kyotani et al. and further in view of Hibino (JP 410072201A).

Reconsideration of the rejection is respectfully requested in view of the amendments to the claims.

Applicants have asserted above that claims 1-8, as amended, are novel and non-obvious over Kyotani et al. Claims 9 and 10 depend ultimately from claim 1 through intervening claim 8. Applicants further submit that the combination of Kyotani et al. and Hibino does not lead to the present invention.

Even though Hibino teaches hydrogen storing with use of graphitic carbon nanotubes, this is not a teaching that the amorphous nano-scale carbon tubes recited in claims 9 and 10, which are totally different from Hibino's graphitic carbon nanotubes, are also useful as gas storing material. Applicants submit that it is impossible to predict the hydrogen-storing properties of unknown amorphous nanotubes based on the teachings of Hibino. Therefore, there would be no suggestion

in any combination of Hibino and Kyotani et al. for the specific limitations recited in claim 1.

Applicants therefore submit that claims 9 and 10 are novel and non-obvious over Kyotani et al. and Hibino, taken separately or in combination.

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact Applicants undersigned agent at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

Attached hereto is a marked-up version of the changes made by the current amendment. The attached page is captioned "**Version with markings to show changes made**."

In the event that this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

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Enclosures: Version with markings to show changes made

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Please amend claims 1-3, 7 and 14 as follows:

1. (Twice Amended) ~~Nano-scale~~ Amorphous nano-scale carbon tubes each containing a main framework which comprises carbon, and each having a diameter of 0.1 to 1000 nm and an amorphous structure, and each having an interlayer spacing (002) between hexagonal carbon layers of at least ~~3.54 Å~~ 3.7 Å, a diffraction angle (2θ) of ~~25.1~~ 24.1 degrees or less, and a 2θ band half-width of at least 3.2 degrees, as determined with a diffractometer by an X-ray diffraction method (incident X-Ray: CuKα).

2. (Amended) ~~The~~ Amorphous nano-scale carbon tubes according to claim 1, each of which comprises hexagonal carbon layers each having a dimension in ~~a~~ the planar direction that is smaller than the diameter of the carbon tube, as determined from a transmission electron microscope image.

3. (Twice Amended) ~~The~~ Amorphous nano-scale carbon tubes according to claim 1, each of which has ~~an interlayer spacing (002) between hexagonal carbon layers of at least 3.54 Å, a diffraction angle (2θ) of 25.1 degrees or less, and~~ a 2θ band half-width of at least ~~3.2~~ 7.0 degrees, as determined with a diffractomer by an X-ray diffraction method (incident X-ray: CuKα).

7. (Twice Amended) ~~The amorphous~~ Amorphous non-scale carbon tubes according to claim 1, which are formed on a substrate, a particle or a porous material.

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14. (Amended) The method for producing said carbon material containing the amorphous nano-scale tubes according to claim 13, wherein the catalyst ~~comprising~~ comprises a metal powder and/or a metal salt is at least one member selected from the group consisting of alkaline earth metals, iron, cobalt, nickel, chromium and their salts.

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